



## BD181 – BD182 – BD183

### NPN SILICON TRANSISTOR POWER LINERAR AND SWITCHING APPLICATIONS

BD181, BD182 and BD183 are silicon NPN transistors intended for a wide variety of high power applications. Typical applications include power switching circuits, audio amplifiers, solenoid drivers, and series and shunt regulators.

#### ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings		Value	Unit	
$V_{CBO}$	Collector-Base Voltage		BD181	55	V
			BD182	70	
			BD183	85	
$V_{CEO}$	Collector-Emitter Voltage		BD181	45	V
			BD182	60	
			BD183	80	
$V_{CER}$	Collector-Emitter Voltage	$R_{BE}=100\ \Omega$	BD181	55	V
			BD182	70	
			BD183	85	
$V_{CEX}$	Collector-Emitter Voltage	$V_{BE}=-1.5\ V$	BD181	55	V
			BD182	70	
			BD183	85	
$V_{EBO}$	Emitter-Base Voltage		BD181	7.0	V
			BD182		
			BD183		
$I_C$	Collector Current		BD181	15	A
			BD182		
			BD183		
$I_B$	Base Current		BD181	7.0	A
			BD182		
			BD183		
$P_T$	Power Dissipation	@ $T_C < 25^\circ$	BD181	150	Watts
			BD182		
			BD183		



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Symbol	Ratings	Value	Unit	
$P_{TOT}$	Power dissipation	BD181	117	W
		BD182		
		BD183		
$T_J T_s$	Junction Storage Temperature	BD181	200	°C
		BD182		
		BD183		
		-65 to +200		

### THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit
$R_{thJ-C}$	Thermal Resistance, Junction to Case	1.5	°C/W

### ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)	Min	Typ	Mx	Unit	
$I_{EBO}$	Emitter-Base Cutoff Current	$V_{EB}=7\text{ V}, I_C=0$	BD181	-	-	5.0	A
			BD182	-	-		
			BD183	-	-		
$I_{CBO}$	Collector-Base Cutoff Current	$V_{CB}=45\text{ V}$ $t_i=200^\circ\text{C}$	BD181	-	-	2.0	mA
		$V_{CB}=60\text{ V}$ $t_i=200^\circ\text{C}$	BD182	-	-	5.0	
		$V_{CB}=80\text{ V}$ $t_i=200^\circ\text{C}$	BD183	-	-	5.0	
$V_{CEO(BR)}$	Collector-Emitter Breakdown Voltage (*)	$I_C=200\text{ mA}, I_B=0$	BD181	45	-	-	V
			BD182	60	-	-	
			BD183	80	-	-	
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage (*)	$I_C=3\text{ A}, I_B=0.3\text{ A}$	BD181	-	-	1.0	V
		$I_C=4\text{ A}, I_B=0.4\text{ A}$	BD182	-	-	1.0	
		$I_C=3\text{ A}, I_B=0.3\text{ A}$	BD183	-	-	1.0	
$V_{BR(CER)}$	Collector-Emitter Breakdown Voltage (*)	$I_C=200\text{ mA}, R_{BE}=100\ \Omega$	BD181	55	-	-	V
			BD182	70	-	-	
			BD183	85	-	-	

## BD181 – BD182 – BD183

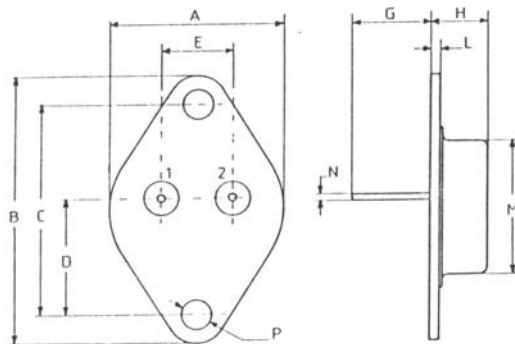
Symbol	Ratings	Test Condition(s)	Min	Typ	Mx	Unit	
$f_{hfe}$	Collector-Emitter Breakdown Voltage (*)	$V_{CE}=4.0\text{ V}, I_C=3.0\text{ A}$	<b>BD181</b>	15	-	-	kHz
			<b>BD182</b>				
			<b>BD183</b>				
$h_{FE}$	Static forward current transfer ratio (*)	$V_{CE}=4.0\text{ V}, I_C=3.0\text{ A}$	<b>BD181</b>	20	-	70	-
		$V_{CE}=4.0\text{ V}, I_C=4.0\text{ A}$	<b>BD182</b>	20	-	70	
		$V_{CE}=4.0\text{ V}, I_C=3.0\text{ A}$	<b>BD183</b>	20	-	70	

**For PNP types current and voltage values are negative**

(\*) Pulse Width  $\approx 300\ \mu\text{s}$ , Duty Cycle  $\angle 2.0\%$

### MECHANICAL DATA CASE TO-3

DIMENSIONS		
	mm	inches
A	25,51	1,004
B	38,93	1,53
C	30,12	1,18
D	17,25	0,68
E	10,89	0,43
G	11,62	0,46
H	8,54	0,34
L	1,55	0,6
M	19,47	0,77
N	1	0,04
P	4,06	0,16



Pin 1 :	Base
Pin 2 :	Emitter
Case :	Collector